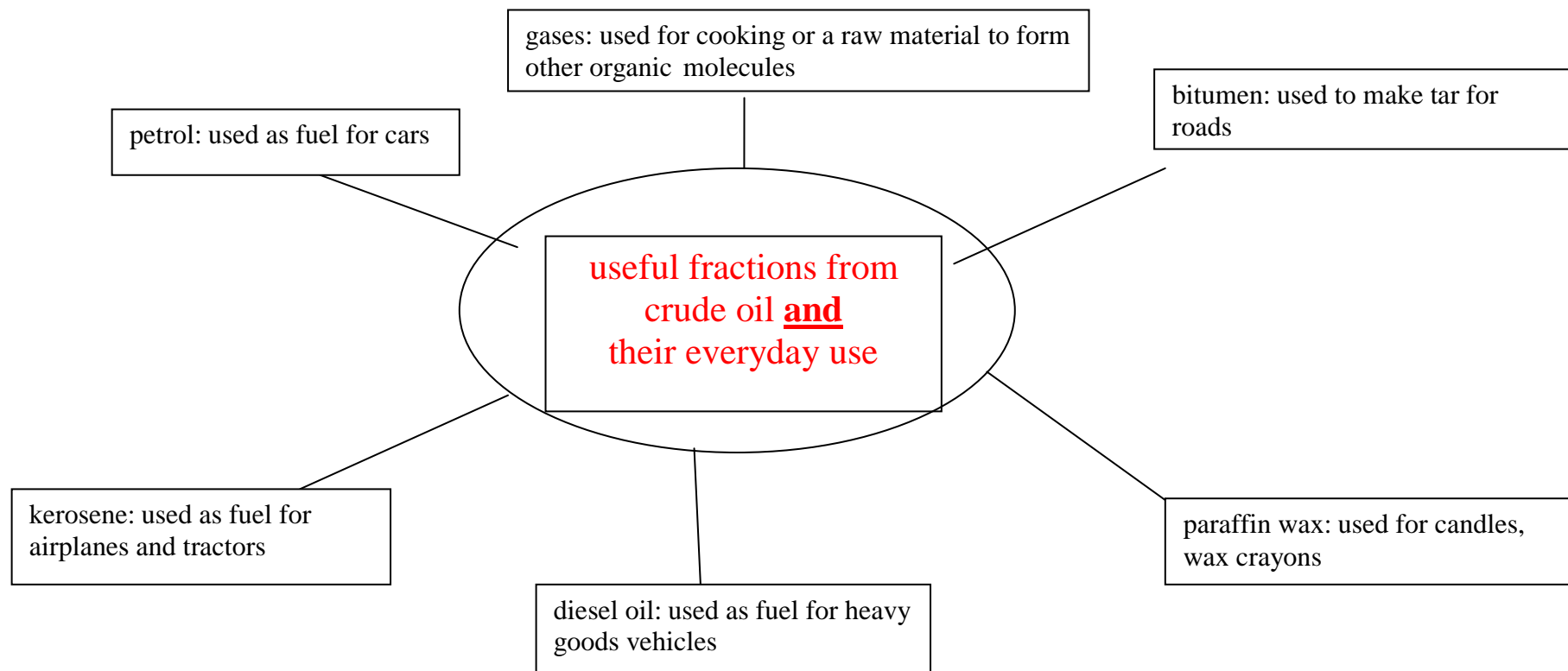


## ANSWERS: Crystal Ball questions on Fractional Distillation

1)



2) i) Cracking is the breaking down of large hydrocarbons into smaller more useful hydrocarbons. This is done at high temperatures, using a catalyst.

ii) decane  $\rightarrow$  ethene + octane



3) The 4 fractions and residue would increase in viscosity (ability to pour). The residue left in the side arm test tube would be black, sticky, thick and hard to pour so it would be very viscous. The first fraction (up to 100°C ) would be colourless and easy to pour, the second fraction (100–150 °C ) would have a slight yellow tinge to it and be relatively easy to pour but not as easy as the first fraction. The trend in colour and viscosity would continue, so the third fraction (150–200 °C) would be a yellow colour and pour easily but not as easily as the first two fractions. The fourth fraction (200–250 °C) would be a brown colour and not pour very easily but it would pour easier than the black residue left in the side arm test tube. The samples would become increasingly difficult to burn, the 1<sup>st</sup> and 2<sup>nd</sup> fractions would burn with a slight yellow flame, the 3<sup>rd</sup> and 4<sup>th</sup> would have a yellow, smokey flame and the black residue would not burn.